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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,800

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Yoshihiro Yasui

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EXAMINER

CADUGAN, ERICA E

ART UNIT

PAPER NUMBER

3726

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,800	Applicant(s) YASUI, YOSHIHIRO	
	Examiner Erica E. Cadugan	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-23 and 37-43 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-23 and 37-40 is/are allowed.
- 6) ☒ Claim(s) 41-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. Claims 41-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “difficulty” in the limitation "adjacent to each other to an extent that an operator has a difficulty to gain access to an inner space" in claim 41 is a relative term which renders the claim indefinite. The term "difficulty" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Note that it is unclear what distance or range of distances constitutes “adjacent to each other to an extent that an operator has a difficulty to gain access to an inner space”, particularly noting that it is unclear how "difficult" it must be for an operator to gain access before such spacing is considered to create a "difficulty". Note that this is further rendered unclear by the fact that the specification does not describe any such distance or range of distances, does not describe what constitutes a “difficulty” in line with the claim language, nor does it quantify what size the “operator” in question is, noting that what is a "difficult" fit for an operator having a 52-inch waist may not be at all difficult for an operator with a 28-inch waist, for example.

Claim Rejections - 35 USC § 103

3. Claims 41-43, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,692,292 to Asai et al. in view of JP-4-123493 (hereinafter JP '493).

Asai et al. teaches a transfer-type circuit board fabricating system in the form of a "line" having a plurality of working modules or "operation performing apparatuses" 10, 12, 14, 16, 18, and 20 that each perform "a respective predetermined operation related to a circuit board substrate" in the form of a printed circuit board or PCB 24. The PCB 24 is conveyed through the modules via conveyor device 26 (see Figure 2, for example). Component supply device 60 provides components to be placed on the PCB by placer heads 96 of various ones of the modules (see Figure 2, for example, as well as at least col. 11, line 34 through col. 12, line 35 and col. 14, line 40 through col. 15, line 37, for example).

Specifically regarding claim 41, it is noted that the "operation performing apparatuses" 10, 12, 14, 16, 18, and 20 are shown as being placed directly adjacent one another and in direct contact with one another (see at least Figures 1 and 2), and thus, insofar as the present invention "operation performing apparatuses" 12 are considered to be arranged to be "adjacent to each other to an extent that an operator has a difficulty to gain access to an inner space of said each of the operation performing apparatuses", the "operation performing apparatuses" 10, 12, 14, 16, 18, and 20 are considered to be so spaced.

Specifically regarding claim 42, it is noted that, as broadly claimed, each of the "operation performing apparatuses" is considered to be "movable", i.e., "able" to be moved, in "each of opposite directions" that are perpendicular to the (left-right as viewed in Figure 2) circuit-substrate conveying direction (again noting that element 26 is the conveying device) in

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which the circuit substrate is conveyed by the substrate conveyor 26 (see Figure 2), at least by moving them in that direction with a forklift or the like, for example.

Specifically regarding claim 43, it is noted that the apparatuses 10, 12, 14, 16, and 18 are provided on a "base", such as, for example, the floor, or alternatively, such as the feet shown supporting the apparatuses in Figure 1, or alternatively, such as the bottom-most pieces of the apparatuses from which the feet downwardly extend, for example. Additionally, it is noted that Asai explicitly described the various working modules 12, 14, 16, 18 are described as having the same dimensions in the X direction, and having at least some identical portions (see at least col. 19, lines 19-34, and col. 21, lines 39-53, for example). Note that, as broadly claimed, the identical portions of the members 12, 14, 16, 18 that are described can themselves be considered the claimed "plurality of modules" that "have respective identical constructions" (i.e., considering the identical portions to be the identical "modules" as broadly claimed). Further note that the "modules" are each considered to be movable in each of the claimed directions on any of the bases described, at least via a fork lift or a crane or the like, for example. For example, note that moving the whole device(s) on the "base" floor is a movement of the modules on the floor.

While Asai does teach that the system can be used to produce different PCB's, and also teaches that different modules can be used (see col. 28, lines 38-46, for example), Asai is silent about any exchange of "exchangeable constituent elements" of the modules, and thus does not explicitly teach the steps of "causing an element carrier plate to hold said at least one second constituent element such that said at least one second constituent element is detachable from the element carrier plate, causing the substrate conveyor to convey the element carrier plate from

one of opposite ends of the operation-performing-apparatus line toward an other end thereof, stopping the element carrier plate in said at least one operation performing apparatus, and automatically exchanging said at least one first constituent element held by at least one apparatus-side element-holding portion of said at least one operation performing apparatus, with said at least one second constituent element held by the element carrier plate” as set forth in independent claim 41.

However, JP ‘493 teaches an arrangement wherein an “element carrier plate” 10 detachably holds “constituent elements” or nozzles 8 to be exchanged with a nozzle 8 of a placer head 1 that is used to place electronic parts or components P on a board substrate 4. The “element carrier plate” 10 is conveyed along a line by the same conveyor 9 that conveys the board substrate 4 into the vicinity of the placer head 1 such that the automatic exchange of nozzles between head 1 and "element carrier plate" 10 can occur. See Figures 1-3 as well as the English Abstract provided by the Applicant, as well as page 5, the paragraph under the heading “Action”, page 5, the paragraph beginning “Fig. 1 is a perspective view” through page 6, the paragraph beginning “Numeral (10) is a carrier body...”, and also page 7, the paragraph beginning “The circuit board (4)...” through page 8, the paragraph beginning “Next the transfer head (1)...”, all of the full English translation of the JP ‘493 document.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the operation performing-apparatus line taught by Asai with the “element carrier plate”, that detachably holds replacement nozzles for the placer head, along the same conveyor (26 of Asai) that conveys the board substrate through the operation performing line, as taught by JP '493, for the purpose of enabling the nozzles of the placer head

of Asai's device in the desired operation performing apparatuses of Asai's production line to be automatically exchanged (e.g., when damaged or worn) in a simple manner, thus further automating the process, as would be evident and readily understood from JP '493's invention.

Note: the provision of JP '493's invention to Asai as described would result in the operation performing apparatus where the member considered the "element carrier plate" 10 of JP '493 is located in an operation performing apparatus of Asai, and that the element 10 holds a plurality of replaceable nozzles thereon as described previously.

Allowable Subject Matter

4. Claims 15-23 and 37-40 are allowed.

Response to Arguments

5. Applicant's arguments filed May 28, 2008 with respect to the new claims 41-43 have been fully considered but they are not persuasive.

6. See the above new grounds of rejection for the new claims 41-43 for a detailed explanation of how the new claims are rejected.

Particularly regarding claim 41, Applicant has asserted that "[H]owever, the four working modules 12-18 are sufficiently spaced from each other along the straight line" and "[T]herefore, an operator can easily gain access to each of the working modules 12-18 and accordingly, it is not reasonably suggested to convey an element carrier plate holding one or more constituent elements, to at least one of the working modules 12-18". The particular limitation of "arranging the operation performing apparatuses to be adjacent to each other to an extent that an operator has a difficulty to gain access to an inner space of said each of the operation performing apparatuses" has been addressed in both a rejection under 35 USC 112, second paragraph, and in

the rejection of claim 41 based on the Asai and JP '493 reference, and attention is accordingly directed to those rejections.

Additionally, Applicant's comments appear to indicate that Applicant is of the position that even if the modules taught by Asai were somehow considered to be sufficiently spaced from each other along a straight line so as to grant "easy" access to an operator, this would be, in and of itself, sufficient to preclude the obviousness rejection from being made, i.e., since, in Applicant's apparent view, it would not be "reasonably suggested" to "convey an element carrier plate holding one or more constituent elements to at least one of the working modules" if an operator had easy access.

However, this is not persuasive. Firstly, it is noted that even if the modules taught by Asai were (which they do not appear to be) spaced far apart along the line in the direction of the conveyor 26, such is not, in and of itself, a teaching away from a conveying of an element carrier plate holding one or more constituent elements to at least one of the working modules, i.e., it is not a teaching that such a conveying is a bad or undesirable thing to do.

Furthermore, one having ordinary skill in the art would be well aware of the benefits of providing further automation to Asai's equipment by applying the JP '493 automated method of exchanging "constituent elements", particularly noting that, as noted in the Office action of March 18, 2008 as well as above, Asai does teach that the system can be used to produce different PCB's, and also teaches that different modules can be used (see col. 28, lines 38-46, for example), though Asai is silent about any exchange of "exchangeable constituent elements" of the modules. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the operation performing apparatus line taught by Asai

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with the “element carrier plate”, that detachably holds replacement nozzles for the placer head, along the same conveyor (26 of Asai) that conveys the board substrate through the operation performing line, as taught by JP ‘493, for the purpose of enabling the nozzles of the placer head of Asai’s device in the desired operation performing apparatuses of Asai’s production line to be automatically exchanged or replaced (e.g., when damaged or worn) in a simple manner, thus further automating the process, as would be evident and readily understood from JP ‘493’s invention.

Conclusion

7. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474.

The examiner can normally be reached on Monday-Thursday, 5:30 a.m. to 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erica E Cadugan/
Primary Examiner
Art Unit 3726

eec
August 27, 2008